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(54) **PREPARATION OF 6-AMINOCAPROIC ACID FROM 5-FORMYLVALERIC ACID**

(57) The invention relates to a method for preparing 6-aminocaproic acid (hereinafter also referred to as '6-ACA') using a biocatalyst. The invention further relates to a method for preparing ϵ -caprolactam (hereafter re-

ferred to as 'caprolactam') by cyclising such 6-ACA. The invention further relates to a host cell, a micro-organism, or a polynucleotide which may be used in the preparation of 6-ACA or caprolactam.

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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2007/130518 A2 (DU PONT [US]; DONALDSON GAIL K [US] ET AL.) 15 November 2007 (2007-11-15) * Seq 122 is 100% identical to SEQ ID NO:2; page 76 *	8-14	INV. C12P13/02 C12P17/10 C12P13/00 C07C229/08 C07D223/10 C07D227/06 C07D201/08 C07C227/06
X	SHIN J S ET AL: "Exploring the Active Site of Amine:Pyruvate Aminotransferase on the Basis of the Substrate Structure-Reactivity Relationship: How the Enzyme Controls Substrate Specificity and Stereoselectivity", JOURNAL OF ORGANIC CHEMISTRY, AMERICAN CHEMICAL SOCIETY, US, vol. 67, no. 9, 1 May 2002 (2002-05-01), pages 2848-2853, XP002420352, ISSN: 0022-3263, DOI: 10.1021/J0016115I * the whole document *	8-14	
A,D	WO 2005/068643 A (DSM IP ASSETS BV [NL]; RAEMAKERS-FRANKEN PETRONELLA C [NL]; NOSSIN PET) 28 July 2005 (2005-07-28) * the whole document *	1-7	TECHNICAL FIELDS SEARCHED (IPC) C12P C07C
E	WO 2009/113853 A2 (DSM IP ASSETS BV [NL]; WU LIANG [NL] ET AL.) 17 September 2009 (2009-09-17) * the whole document *	1-14	
The present search report has been drawn up for all claims			
Place of search Berlin		Date of completion of the search 15 April 2020	Examiner Schneider, Patrick
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-7(completely); 8-14(partially)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-7(completely); 8-14(partially)

Method to produce 6-aminocaproic acid (6-ACA) from 5-formylpentanoate (5-FVA) using an aminotransferase (E.C. 2.6.1) for a transamination reaction or an amino acid dehydrogenase (E.C. 1.4.1) for reductive amination using aminotransferases characterized by each of SEQ ID NOs: 2, 5, 8, 12, 15, 17, 19, 21, 23, 25, 27, 29, 65, 67 or 69 and a recombinant host cell comprising the aminotransferase characterized by SEQ ID NOs: 2 and the corresponding coding sequences.

2-15. claims: 8-14(partially)

A recombinant host cell comprising each of the aminotransferases characterized by each of SEQ ID NOs: 5, 8, 12, 15, 17, 19, 21, 23, 25, 27, 29, 65, 67 or 69 and the corresponding coding sequence.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

